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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,907	12/14/2000	Hironori Kikkawa	Q62301	5747

7590

05/05/2003

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Washington, DC 20037-3202

EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

91  
175  
220  
P. 23 Spec  
11-14  
360

**Office Action Summary**

Application No.

09/735,907

Applicant(s)

KIKKAWA, HIRONORI

Examiner

Prasad R Akkapeddi

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 05 February 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/05/2003 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (Okamoto) (U.S. Patent No. 5,825,445) in view of Miyazawa (U.S. Patent No. 6,011,604). Both Okamoto and Miyazawa were previously cited in the Office action dated May 15, 2002.

a. As to claims 1-2: Okamoto in Fig 3 and in (Cols. 11 and 12) discloses a OCB type liquid crystal display with an active matrix substrate 12, having TFTs 12b, signal lines and scanning lines (not shown), pixel electrode 12a, and an opposing substrate 11 with a common electrode 11a and a liquid crystal 13

interposed between the two substrates and the rubbing directions RA of the two substrates ran parallel (same direction) and the orientation directions are limited to within 45 degrees for the horizontal axis as shown in Fig. 4. Okamoto does not explicitly disclose that the signal lines are formed in a same layer as the pixel electrode or that the signal lines extend along the long side direction of the pixel region. Miyazawa on the other hand, in disclosing a liquid crystal display device, discloses the specific arrangement of the signal lines (32), pixel electrode (34) and the signal line being in the same layer as the pixel electrode and being parallel and extending along the pixel region (Fig.3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific configuration as disclosed by Miyazawa to the device of Okamoto to enhance the aperture ratio of the device.

b. As to claims 5-9: Miyazawa discloses plurality of pixel regions (34) each is surrounded by scanning lines (31) and signal lines (32), insulating film (37), TFT (33), a transparent substrate (25) opposing the active matrix substrate (24) provided with a common electrode (44), a liquid crystal (26), a compensation electrode (35b) between the scanning line and the pixel electrode (Fig. 16), as recited in claim 5. The overlap of the electrode (35b) with the pixel electrode, as recited in claim 6 and the connection to the scanning line (31) is also shown in Fig.16, as recited in claims 7 and 8. Miyazawa also discloses that the opposing surface of the active matrix substrate (25) is formed into a flat surface (Fig. 2), as recited in claim 9.

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4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto and Miyazawa and further in view of the previously cited reference Ueda et al. (Ueda) (U.S. Patent No. 5,600,461).

Okamoto discloses an OCB type liquid crystal device showing the orientation of the molecules with the same rubbing direction and two substrates both having a common electrode and a TFT substrate with signal and scanning lines with emphasis on the bending nature of these molecules. Miyazawa also teaches a device having scan lines, signal lines and pixel electrodes and enhancing the aperture ratio. However, neither Okamoto nor Miyazawa disclose that the pixel electrode is formed in a layer located closer to the common electrode than the signal lines and the scanning lines. Ueda, on the other hand, discloses in detail, an active matrix liquid crystal display device with a TFT substrate 115, having plurality of scan lines 103, plurality of signal lines 105 and pixel electrodes 109. Another opposite substrate 119 with an opposite electrode is opposed to the TFT substrate (Col 8, lines 32-33). The arrangement of the pixel electrode with respect to the signal and scan lines is shown in Figs. 8(a) and 8(b). The pixel electrode is clearly shown to be in a layer that is closer to the opposing electrode on the opposing substrate (119).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the active matrix structure of Ueda to the liquid crystal structure disclosed by Okamoto and Miyazawa to decrease the parasitic capacitance formed between each pixel electrode and

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each scan line and between each pixel electrode and each signal line so as to prevent an uneven luminance and a cross talk of display pictures and to accomplish a good picture display (col. 4, lines 7-14).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto, Miyazawa and Ueda as applied to claim 3 above, and further in view of Iizuka et al. (Iizuka) (U.S. Patent No. 6,515,720).

c. Iizuka discloses a side portion of the pixel electrode (53) overlaps the signal lines (50) (Fig. 1) (col. 4, lines 58-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the overlapping of the pixel electrodes with the signal lines to display high contrast image and increase the display area.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fuzikawa et al. (U.S. Patent No. 5,995,178)- discloses the overlap of pixel electrodes with the scan and signal lines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

*fra*

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April 23, 2003

  
TOANTON  
PRIMARY EXAMINER